

call of the cheetah is a most decided mew, hardly distinguishable from that of domestic cats.

Apart from the roar there is another very distinctive feature about the voice of the cats with a normal hyoid. This is the familiar "purr." Lions, tigers, leopards, and jaguars never purr; on the other hand, such widely different species as cheetahs, pumas, caracals, jaguarondis, and others that could be named, always, when sufficiently tamed, express pleasure or content by that sound. These are interesting differences correlated with the differences in the hyoidean apparatus above described.

CONCLUSION.

The following are the main points this paper seeks to establish:—

1. The hyoid of the jaguar (*Felis onca*) resembles that of the lion (*F. leo*), tiger (*F. tigris*), and leopard (*F. pardus*) in having the suspensorium lengthened by an elastic ligament interposed between the ceratohyal and the upper elements of the suspensorium. Blainville, therefore, was wrong in denying the existence of the ligament in the jaguar.
2. The hyoid in the ounce (*F. uncia*) resembles that of the above-mentioned species.
3. The species in which the hyoid is provided with this ligament roar, but do not purr. All the other species of Felidæ with normally constructed hyoid purr, but never roar.

XXIII.—*Triæschna gossi*, a new Genus and Species of Odonata from the Eocene of Bournemouth. By HERBERT CAMPION.

[Plate XI.]

IN the 'Entomologist' for 1878 (vol. xi. p. 193) H. Goss figured the right fore-wing of a fossil *Æschnid* dragonfly, and made some general remarks concerning it. The specimen was in a very fine state of preservation, and was obtained by J. Starkie Gardner from the leaf-beds (Bagshot Sands) of Bournemouth, Hampshire. It was referred to the genus *Æschna*, but no specific name was proposed, no measurements of the wing were stated, and no description of the venation was given.

The figure was noticed by Scudder in 1890 ('Tertiary Ins. N. Amer.' pp. 142, 144), who remarked that "it appears to belong to the subgenus *Basiaeschna*, but, as it is certainly incorrectly drawn in some particulars, it may be in those, such as the simplicity of the subnodal sector [*i. e.*, the radial sector], upon which this suggestion is based."

Goss's figure is certainly not a good one, but it evidently represents a fossil purchased from J. S. Gardner in 1892, and now preserved in the British Museum (Natural History). This is likewise a right fore-wing, in almost perfect preservation, from the Bagshot Beds of Bournemouth. With it is placed the counterpart of the basal half of the fossil, which, unlike the main slab, shows the extreme base of the wing.

For facilities for studying this beautiful fossil, which I now proceed to describe, I am indebted to the kindness of the Keeper of Geology, British Museum. I am also under obligation to Dr. F. Ris, of Rheinau, Switzerland, for valuable suggestions respecting relationships with recent genera.

Triaschna gossi, gen. et sp. n. (Pl. XI.)

Right fore-wing:—*Narrow**, entirely hyaline. Apex acute. Length about 64 mm. Width at its broadest part 13 mm. Costa strongly arched above the region of the triangle. *Nodus almost exactly at the middle of the wing.* Distance between nodus and proximal end of pterostigma 20 mm. The antenodal cross-veins very numerous, as many as thirty-three being visible; the usual two hypertrophied antenodals cannot be detected. Twenty visible postnodals. *Pterostigma dark brown, broad, 5 mm. long, covering several cells; brace-vein rather slender, very oblique, the anterior end not meeting exactly the proximal limit of the pterostigma. Subcosta not produced beyond the nodus. No cross-veins in the median space.* Arculus at the level of the third antenodal, moderately angulated; the branches of the media arising very close together at about the middle. M_1 slightly waved posteriorly before the level of the pterostigma. M_{1a} arising well beyond the level of the middle of the pterostigma. M_2 arching gently upwards just before the pterostigma, and thereafter taking a markedly downward course. Oblique vein not recognizable. *Rs bifurcating conspicuously (about 8 cells) before the level of the proximal end of the pterostigma, and not arching anteriorly; fork almost symmetrical; one row of cells between the upper branch and M_2 , and four rows of cells within the fork at the widest part. R. suppl. well developed,*

* The principal diagnostic characters are printed in italics.

hardly at all curved or waved, and separated from Rs at the widest interval by three rows of cells. M_3 reaching the hind margin of the wing at about the level of the bifurcation of Rs. M_4 not bent away abruptly from M_3 beyond the level of the nodus, but curving away from it gently, so as to admit two rows of cells from the level of the proximal end of R. suppl. to the hind margin of the wing. At least seven cross-veins in the supertriangle. Subtriangle traversed by a single cross-vein. Five other cubito-anal cross-veins, amongst which the anal crossing is not discernible. Triangle very long, narrow, its base comparatively broad and bowed towards the interior of the enclosure, its long axis directed outwards and not at all forwards, containing seven cells, two of which surmount a single large cell at the base. Trig. suppl. long and well developed, gently curved, its proximal end resting upon the triangle only a very little below the outer corner, its distal end reaching about as far as the proximal end of M. suppl., from which it is separated by one row of cells. M. suppl. with a slight double curve; beginning as a well-defined vein soon after the level of the proximal end of the bridge; separated from M_4 at first by two rows of cells, under the nodus by three rows, and towards the margin of the wing by two rows of small cells. Space between Cu_1 and Cu_2 moderately dilated at the base, and with a single row of cells. Cu_1 reaching the hind margin of the wing a little beyond the level of the nodus. Cu_2 separating quite near to the lower corner of the triangle, and continuing as a distinctly marked vein about as far as the level of the nodus. The cells between this vein and the hind margin of the wing numerous, and arranged for the most part in oblique rows, thus giving to Cu_2 an appearance of branching. The usual two rows of cells between the anal vein and the hind margin of the wing; twelve cells in the upper row. The membranule not preserved.

Type of the genus and species the above-mentioned fossil and its counterpart in the British Museum (Natural History), Geol. Dept., reg. no. I. 2595.

There are several other fossil dragonflies with which *Triæschna gossi* may be usefully compared. The oldest of these appears to carry the history of the *Æschninae* well back into Mesozoic times, for a figure of *Morbæschna muensteri*, Germar, published by Prof. James G. Needham (Bull. Amer. Mus. Nat. Hist. xxiii. p. 142, 1907), shows a venation comparable with that of the North-American *Æschninae* *Gomphæschna furcillata*, Say, and evidently coming within the same subfamily. The history of this fossil is not given, but the

species was originally described from the Lithographic Stone of Bavaria. Another record from the Kimmeridgian which may, perhaps, be mentioned here is that of a very small nymph from North-eastern Spain, described by Meunier under the name of *Palæschna vidali* (Mem. Acad. Barcelona, xi. no. 9, p. 122, pl. ii., 1914).

Eleven species of the subfamily from the Tertiary of Europe and North America were enumerated by Handlirsch in 1907 ('Die Fossilen Insekten,' pp. 900-901). Four of them—*Æschna larvata*, Scudder, *Æ. dido*, Hagen, *Æ. eudore*, Heer, and *Æschna* sp., Curtis—were described from nymphs, and, even if their corresponding imagines should become known, the different stages could hardly be associated together with any degree of certainty. Moreover, the identification of these nymphs may not be even approximately correct. Of the remains of adult specimens, one only—the subject of the present paper—is known from the Eocene. Both *Anax metis*, Heer, from the Miocene of Radoboj, Croatia, and *Æschna separata*, Scudder, from the Miocene of Florissant, Colorado, have been referred by Needham to the Nearctic genus *Oploweschna*. These two species, as well as *Litheschna needhami*, Cockerell (Miocene of Florissant), differ from *Trieschna gossi* in respect that in them the vein Rs remains unbranched. As to *Litheschna*, in 1913 Professor Cockerell considered that it "is perhaps too close to *Gomphæschna*" (Proc. U.S. Nat. Mus. xlv. p. 579, footnote). *Æschna polydore* and *Æ. tyche*, both described by Heer from the Miocene of Oeningen, Baden, were considered by Scudder "to belong pretty certainly to *Æschna* s. s." According to Heer's figures (Neue Denkschr. Schweiz. Ges. xi. t. iv. figs. 6, 7, 1850 [1849]), both these fossils are greatly lacking in venational detail, and their exact generic position must be regarded as doubtful. But, however this may be, they appear to differ from the Bournemouth fossil in several characters of importance. Thus, in the Oeningen insects the branches of the media are more distinctly separated from each other at their origin, the trig. suppl. is not developed, and Rs bifurcates more distally, as well as asymmetrically. In addition, the *Trieschna* wing is at least half as long again as the wings of Heer's species. *Æschna solida*, Scudder, Miocene of Florissant, has been declared by Needham to be "the only fossil *Æschna* that seems to fit that name in the modern sense of it" (Proc. U.S. Nat. Mus. xxvi. p. 761, 1903).

Since the appearance of Handlirsch's list, Cockerell has

published another species of *Oplonæschna* (*O. lapidaria*) from Florissant (Proc. U.S. Nat. Mus. xlv. p. 577, 1913).

The nearest relatives of *Triæschna* are to be found among the *Æschninae* of the present day, rather than among the Miocene species which we have just considered. In the linear arrangement of the subfamily proposed by Dr. E. M. Walker, it would seem to find its proper place as a member of the *Brachytron* group of genera, and of the *Brachytron* series in that group ('N. Amer. Dragonf. Genus *Æschna*,' p. 25, 1912). *Lithæschna*, also, alone of the Miocene forms, apparently belongs to the *Brachytron* group, although not to the same series. The phylogenetic tree on p. 24 of the work cited shows the great branch formed by this group as ending with three twigs, representing the closely-allied genera *Brachytron* (Europe and Asia Minor), *Epiæschna* (North America), and *Æschnophlebia* (Japan). With these Holarctic genera *Triæschna* may be fittingly associated; but, even at the first glance, it is seen to differ from them by reason of the narrowness of the fore-wing. The antenodals, too, are far more numerous, *Triæschna* possessing 33 of those cross-veins, as compared with 13-15 in *Brachytron*, 21-23 in *Epiæschna*, and 18-24 in *Æschnophlebia* (R. Martin, Coll. Selys, *Æsch.*, fasc. xix. pp. 86, 129, 139-140, 1909). Of greater significance still is the fact that in *Triæschna* there are as many as three rows of cells between the radial sector and the radial supplement, instead of two rows, as in *Æschnophlebia* and *Epiæschna*, or one row only, as in *Brachytron*. In *Triæschna* the pterostigma is of moderate length, and is distinctly, if weakly, braced, whereas in *Brachytron* and *Æschnophlebia* it is very long and not braced at all. *Triæschna* may be further differentiated from *Æschnophlebia* by the subcosta not being prolonged beyond the nodus. In *Epiæschna heros*, Fabr., it is evident that we have a very near relative of *Triæschna gossi*, and the resemblance between them is unmistakable, not only as regards general plan, but also in respect of such characters as the shape of the triangle, the presence of three rows of cells between M_4 and the median supplement, and the retracted position, reduced length, and undecided bracing of the pterostigma. Nevertheless, as we have seen, there are differences of importance, and the narrowness of the fork of the radial sector in *Triæschna* may be added to the other distinguishing characters to which attention has been directed.

In conclusion, it may be pointed out that the Bournemouth fossil indicates a dragonfly of great size, surpassing in alar expanse any species now occurring in the British Isles, as

well as all known Tertiary *Æschniæ*. With one exception, the length of wing is greater also than in any of the recent forms with which we have compared *Triaschna*. It is interesting to find that the exception in question is furnished by *Épicschna heros*, the largest representatives of which would about equal *Triaschna fossi* in spread of wing.

EXPLANATION OF PLATE XI.

Triaschna gossi, gen. et sp. n., $\times 1\frac{3}{4}$. Bartonian of Bournemouth.
Type, Brit. Mus. (Nat. Hist.).

XXIV.—*On Small Mammals obtained in Sankuru, South Congo, by Mr. H. Wilson.* By OLDFIELD THOMAS.

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THE British Museum has received from Mr. H. Wilson, of Inkongo, on the Sankuru River, Southern Belgian Congo, a small collection of mammals which are of sufficient interest to deserve a list of them being published. This region of the Congo has been little worked, and it is not surprising that several of the forms need description as new.

It is to be hoped that Mr. Wilson may be able to obtain a complete series of the local Mammalia, as all are certain to form valuable additions to the National Collection.

1. *Hemigalago demidoffi*, Fisch.

♂. 15, 27. Inkongo.
"‘Kashila.’ Common in woods.”—H. W.

2. *Eidolon helvum*, Kerr.

♂. 31; ♀. 32. Inkongo.
"Very common.”—H. W.

3. *Saccolaimus peli*, Temm.

♀. 33. Inkongo.
"Shot in evening hunting insects.”—H. W.

4. *Crocidura* sp.

♀. 2. Inkongo.

5. *Mungos ichneumon*, L.

♂. Inkongo.